WHAT IS CLAIMED IS:

1. A wheel speed calculation method wherein, to calculate
wheel speed at the calculation timing of a given period based
5   on a pulse signal provided by shaping the waveform of a detection
signal of a wheel speed sensor (1,8), the wheel speed sensor
including a rotor (2,9) with a plurality of detected elements
rotating with wheel which is a controlled object;

when both rising and falling edges occur in the present
10 calculation period, wheel speed VW is calculated as follows:

$$VW = [K \times \{Nu(n) + Nd(n)\}]/\{\Delta Tu(n) + \Delta Td(n)\}$$

when a rising edge does not occur although a falling edge
occurs in the present calculation period, the value of VW1 or
VW2, whichever is the lower, is selected as the wheel speed
15 VW, VW1 and VW2 being calculated as follows:

$$VW1 = [K \times \{Nu(n-1) + Nd(n)\}]/\{\Delta Tu(n-1) + \Delta Td(n)\}$$

$$VW2 = [K \times \{1 + Nd(n)\}]/\{\Delta Tut + \Delta Td(n)\}$$

when a falling edge does not occur although a rising edge
occurs in the present calculation period, the value of VW3 or
20 VW4, whichever is the lower, is selected as the wheel speed
VW, VW3 and VW4 being calculated as follows:

$$VW3 = [K \times \{Nu(n) + Nd(n-1)\}]/\{\Delta Tu(n) + \Delta Td(n-1)\}$$

$$VW4 = [K \times \{Nu(n) + 1\}]/\{\Delta Tu(n) + \Delta Tdt\}$$

when neither a rising edge nor a falling edge occurs in
25 the present calculation period, a comparison is made between

the minimum value of VW5 to VW7 and the preceding wheel speed
VW and the minimum value or the preceding wheel speed VW,
whichever is the lower, is selected as the present wheel speed
VW, VW5 to VW7 being calculated as follows:

5    $$VW5 = [K \times \{1 + Nd(n-1)\}]/\{\Delta Tut + \Delta Td(n-1)\}$$
     $$VW6 = [K \times \{Nu(n-1) + 1\}]/\{\Delta Tu(n-1) + \Delta Tdt\}$$
     $$VW7 = (K \times 2)/(\Delta Tut + \Delta Tdt)$$

wherein $\Delta Tu(n)$ is the rising side speed calculation reference
time between the instant at which the last rising edge of the
10   pulse signal in the preceding calculation period occurs and
the instant at which the last rising edge in the present
calculation period occurs,

        $\Delta Td(n)$ is the falling side speed calculation reference
time between the instant at which the last falling edge of the
15   pulse signal in the preceding calculation period occurs and
the instant at which the last falling edge in the present
calculation period occurs,

        $Nu(n)$ is the number of occurrences of the rising edge
within the rising side speed calculation reference time $\Delta Tu(n)$,
20      $Nd(n)$ is the number of occurrences of the falling edge
within the falling side speed calculation reference time $\Delta Td(n)$,

        ΔTut is the rising side speed calculation temporary
reference time between the instant at which the last rising
edge occurs and the present calculation timing when no rising
25   edge occurs in the present calculation period,

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ΔTdt is the falling side speed calculation temporary reference time between the instant at which the last falling edge occurs and the present calculation timing when no falling edge occurs in the present calculation period,

5   K is a constant determined in response to a tire to which calculation of the wheel speed is applied and the number of detected elements (2a, 9a) of a rotor (2, 9) of the wheel speed sensor (1, 8), and

ΔTu(n-1), ΔTd(n-1), Nu(n-1), and Nd(n-1) are the value
10   of the rising side speed calculation reference time ΔTu(n), the value of the falling side speed calculation reference time ΔTd(n), the value of the number of occurrences Nu(n), and the value of the number of occurrences Nd(n) in the preceding calculation period respectively.

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2.   A wheel speed calculation method as set forth in claim 1 calculates the wheel speed used for brake control.

3.   A wheel speed calculation method as set forth in claim
20   2, the wheel speed VW is calculated in a control unit for the brake.